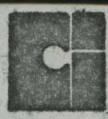


COMPUTER
IMAGE
CORPORATION

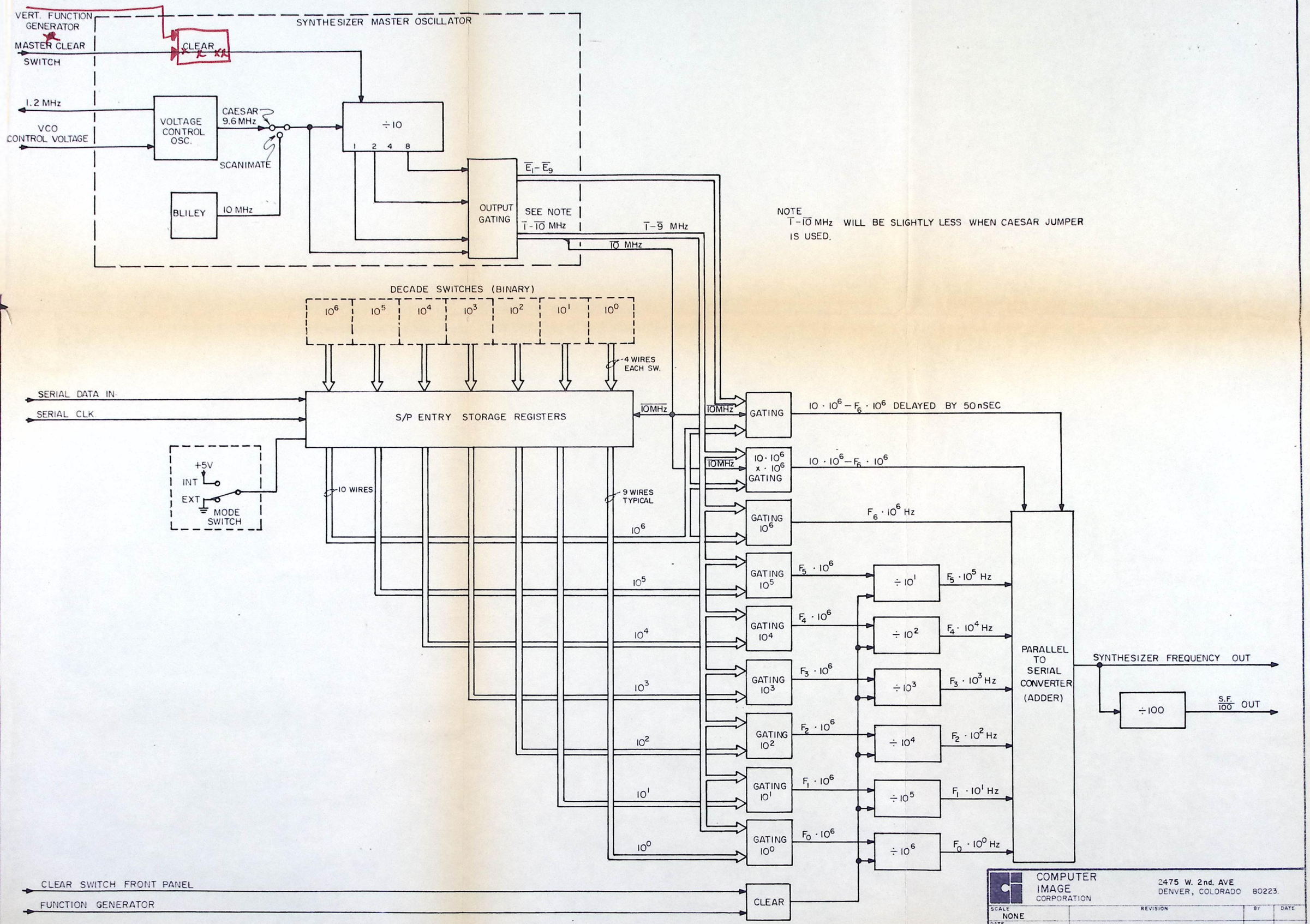
FREQUENCY SYNTHESIZER

W. ALTEMUS

COMPUTER
IMAGE
CORPORATION

FREQUENCY SYNTHESIZER

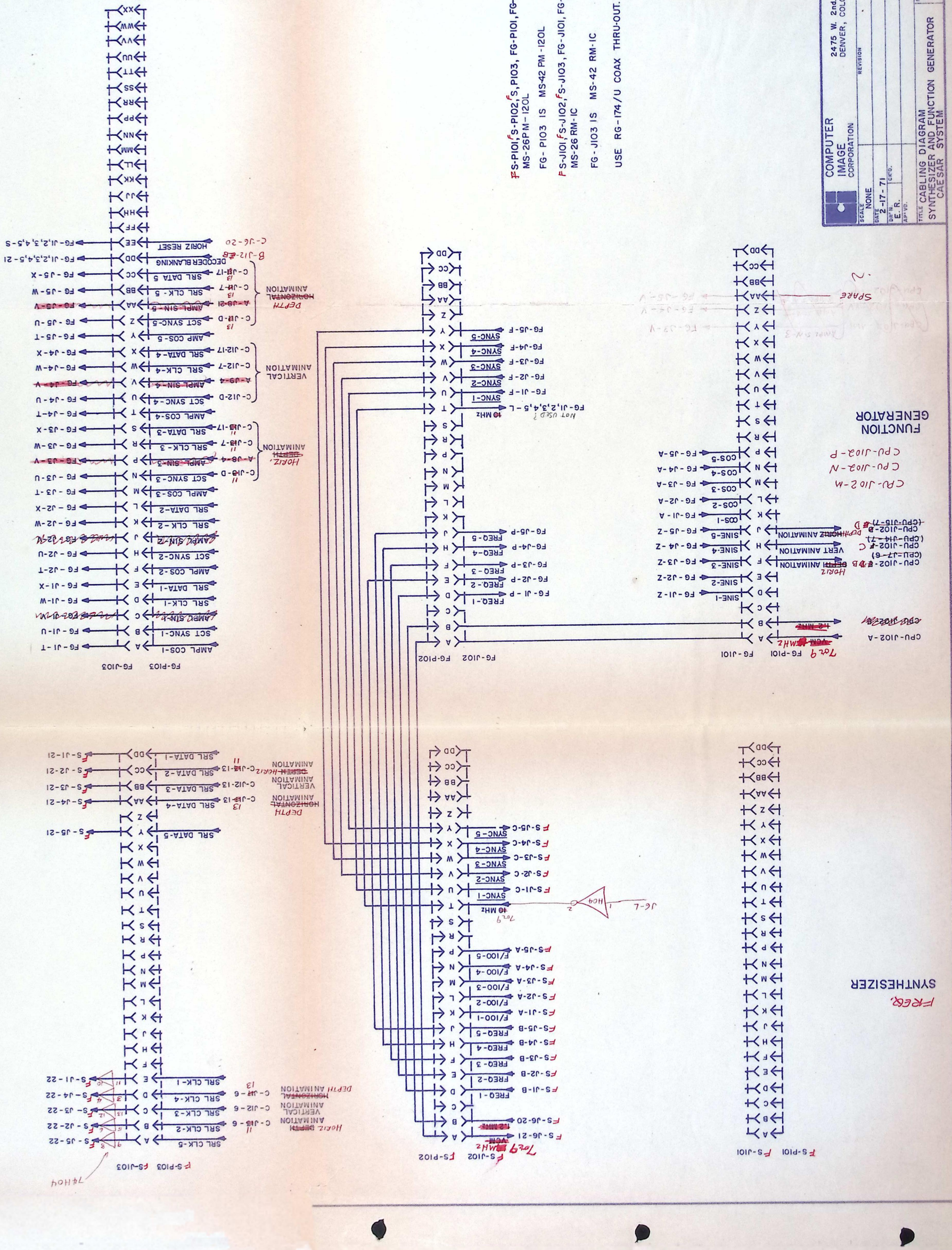
W. ALTEMUS



COMPUTER IMAGE CORPORATION
2475 W. 2nd. AVE
DENVER, COLORADO 80223.

SCALE	NONE	REVISION	BY	DATE
DATE	7-2-71			
DR'N	E.R. CK'D.			
APP'VD.				

TITLE: FREQUENCY SYNTHESIZER BLOCK DIAGRAM
NO. FSW-100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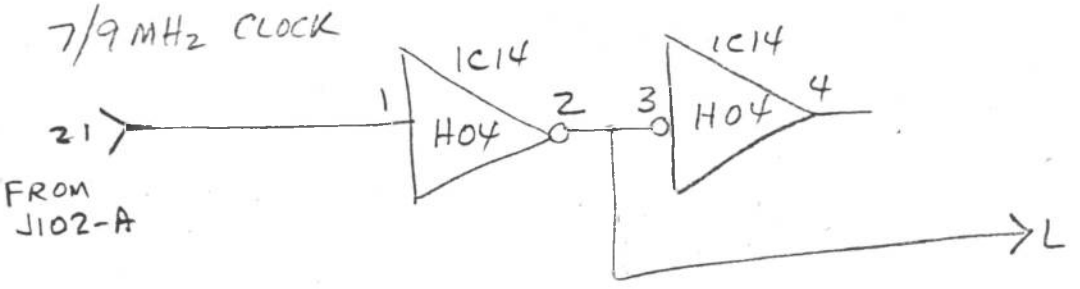
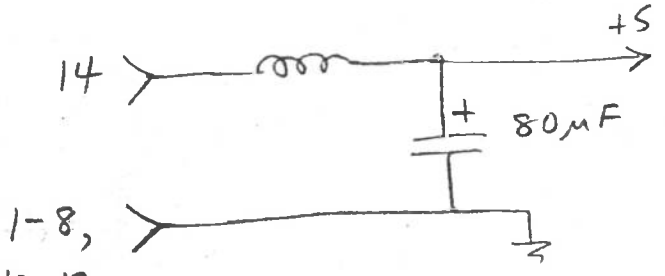
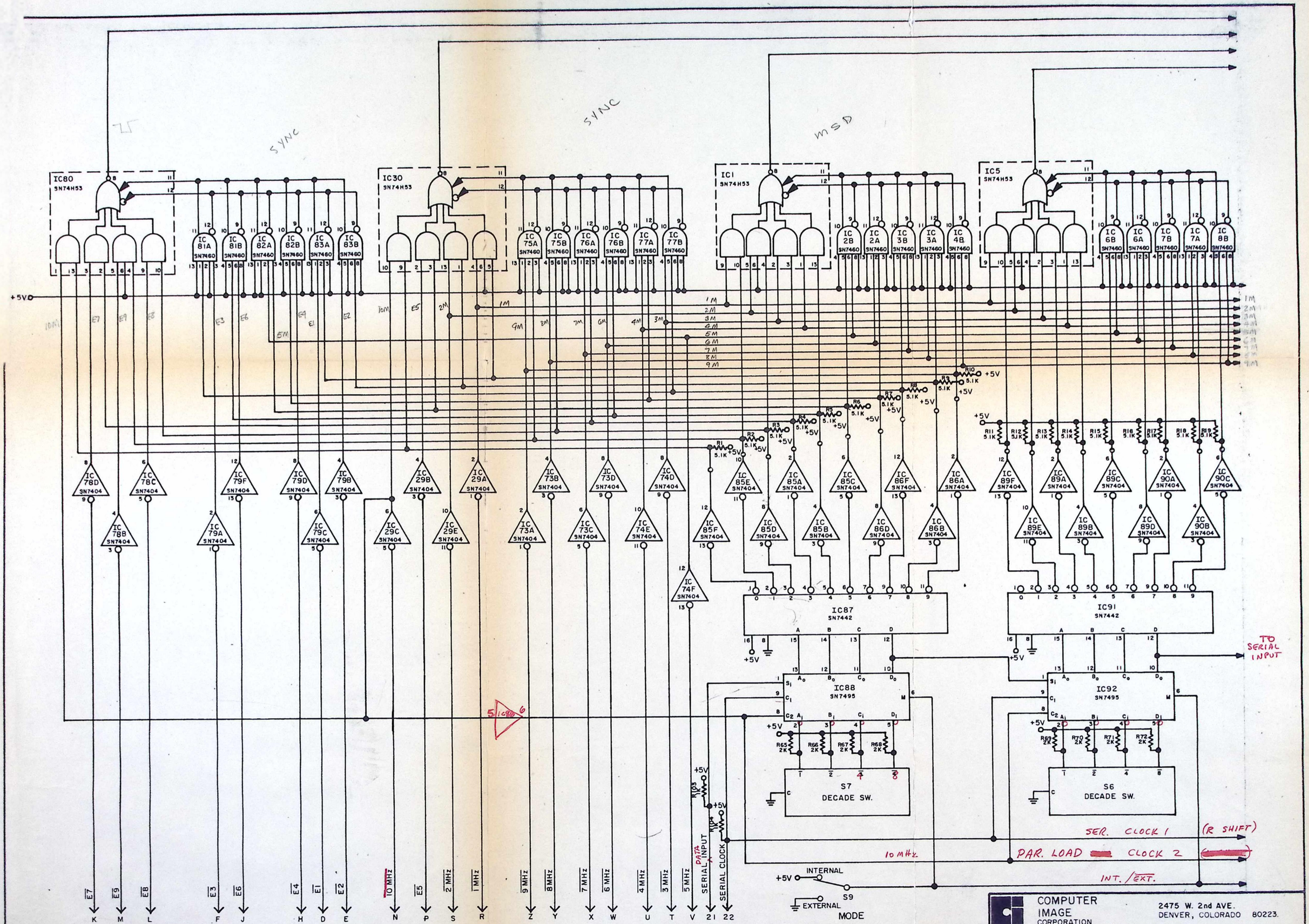
DATE 2-17-71
DRFTM E.R.
APPVD.
REVISION
BY
DATE
TITLE CABLING DIAGRAM SYNTHESIZER AND FUNCTION GENERATOR CAESAR SYSTEM
NO. FSW-101
FS-P101, FS-P102, FS, P103, FG-P101, FG-P102 ARE MS-26PM-12OL
FG-P103 IS MS-42 PM-12OL
FS-J101, FS-J102, FS-J103, FG-J101, FG-J102 ARE MS-26 RM-IC
FG-J103 IS MS-42 RM-IC
USE RG-174/U COAX THRU-OUT.
SYNTHESIZER
FREQ.
FUNCTION GENERATOR
FS-P101
FS-J101
FS-J102
FS-P102
FG-J102
FG-P102
FG-P101
FG-J101
FG-P103
FG-J103
SYNC-1
SYNC-2
SYNC-3
SYNC-4
SYNC-5
10 MHz
SPARE
HORIZ. DEPTH ANIMATION
VERTICAL ANIMATION
DEPTH ANIMATION
DECODER BLANKING
HORIZ RESET
SRL DATA-1
SRL DATA-2
SRL DATA-3
SRL DATA-4
SRL DATA-5
SRL CLK-1
SRL CLK-2
SRL CLK-3
SRL CLK-4
SRL CLK-5
SCT SYNC-1
SCT SYNC-2
SCT SYNC-3
SCT SYNC-4
SCT SYNC-5
AMPL SIN-1
AMPL SIN-2
AMPL SIN-3
AMPL SIN-4
AMPL SIN-5
AMPL COS-1
AMPL COS-2
AMPL COS-3
AMPL COS-4
AMPL COS-5
SINE-1
SINE-2
SINE-3
SINE-4
SINE-5
COS-1
COS-2
COS-3
COS-4
COS-5
FREQ.-1
FREQ.-2
FREQ.-3
FREQ.-4
FREQ.-5

New FS-100 at J6







NOTES:

1. R1 THRU R64 ARE OMITTED WHEN THE COMPUTER READ-IN OPTION IS USED.
2. IC'S 85 THRU 112 AND R65 THRU R92 ARE OMITTED WHEN THE COMPUTER READ-IN OPTION IS NOT USED. ALSO SWITCHES S1 THRU S7 ARE REPLACED BY 0 THRU 9 DECADE SWITCHES. AND THE APPROPRIATE OUTPUTS FROM THESE SWITCHES ARE HARD WIRED TO THE FEED-THROUGHS SHOWN AT THE INVERTER SIDES OF THE 5.1K RESISTORS.
3. +5V GOES TO PIN 14 AND GROUND TO PIN 7 OF ALL IC'S UNLESS OTHERWISE! INDICATED ON THE SCHEMATIC.
4. ALL DIODES ARE IN3064's OR EQUIV.

COMPUTER IMAGE CORPORATION
2475 W. 2nd AVE.
DENVER, COLORADO 80223.

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DATE 3-20-71			
DR'M. E.R. CK'D.			
APP'VD.			

TITLE: FREQUENCY SYNTHESIZER SCHEMATIC
NO. FS-101A
SHEET 1 OF 3

D7
D6
D5
D4
D3
D2
D1
LSD

IC9 SN74H53 — IC 9B, 10B, 10A, 11B, 11A, 12B SN7460
IC13 SN74H53 — IC 14B, 14A, 15B, 15A, 16B SN7460
IC 17 SN74H53 — IC 18B, 18A, 19B, 19A, 20B SN7460
IC 21 SN74H53 — IC 22B, 22A, 23B, 23A, 24B SN7460
IC 25 SN74H53 — IC 26B, 26A, 27B, 27A, 28B SN7460

+5V

R20–R28 5.1K
R29–R38 5.1K
R38–R46 5.1K
R47–R56 5.1K
R56–R64 5.1K

IC 93F, 93A, 93C, 94A, 94C SN7404
IC 97F, 97A, 97C, 98A, 98C SN7404
IC 101F, 101A, 101C, 102A, 102C SN7404
IC 105F, 105A, 105C, 106A, 106C SN7404
IC 109F, 109A, 109C, 110A, 110C SN7404

IC 93E, 93B, 93D, 94B SN7404
IC 97E, 97B, 97D, 98B SN7404
IC 101E, 101B, 101D, 102B SN7404
IC 105E, 105B, 105D, 106B SN7404
IC 109E, 109B, 109D, 110B SN7404

IC95 SN7442
IC99 SN7442
IC103 SN7442
IC 107 SN 7442
IC111 SN7442

SER. INP.

IC96 SN7495
IC100 SN7495
IC 104 SN7495
IC108 SN7495 DM 8580
IC112 SN7495

R73–R76 2K
R77–R80 2K
R81–R84 2K
R85–R88 2K
R89–R92 2K

S5 DECADE SW.
S4 DECADE SW.
S3 DECADE SW.
S2 DECADE SW.
S1 DECADE SW.

SERIAL CLOCK 1 (R SHFT)
CLOCK 2 (PARALLEL LOAD)
INT. / EXT.

5,6 +5V
C1 68µf 6V
C2,C3 80µf 25V (2 EACH)
C4–C15 .01µf 100V (12 EACH)
≈3 V BIAS
D1 D2 D3
R93 330Ω
C16 1µf
GRD
1,4,7,20

COMPUTER IMAGE CORPORATION
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APP'VD				

TITLE: FREQUENCY SYNTHESIZER SCHEMATIC
NO. FS-101A
SHEET 2 OF 3

D7
D6
D5
D4
D3
D2
D1

IC29F SN7404 — IC29D SN7404 — IC78F SN7404 — IC40A SN7400

IC31 SN 7490 — IC32B SN74H73 — IC32A SN7H73 — IC33D SN7400 — IC33C SN7400 — IC34B SN7400 — IC33B SN7400 — IC34C SN7400 — IC34D SN7400 — IC34A SN7400 — IC33A SN7400 — C17 100pf — D4 — R94 470Ω

IC35 SN7490 — IC36 SN 7490 — IC37B SN74H73 — IC37A SN74H73 — IC38D SN7400 — IC38C SN7400 — IC39B SN7400 — IC38B SN7400 — IC39C SN7400 — IC39D SN7400 — IC39A SN7400 — IC38A SN7400 — C16 100pf — D5 — R95 470Ω

IC47B SN7404

IC41 SN7490 — IC42 SN7490 — IC43 SN7490 — IC44B SN74H73 — IC44A SN74H73 — IC45D SN7400 — IC45C SN7400 — IC46B SN7400 — IC45B SN7400 — IC46C SN7400 — IC46D SN7400 — IC46A SN7400 — IC45A SN7400 — C19 100pf — D6 — R96 470Ω

IC47A SN7404

IC49 SN7490 — IC50 SN7490 — IC51 SN7490 — IC52 SN7490 — IC53B SN74H73 — IC53A SN74H73 — IC54D SN7400 — IC54C SN7400 — IC55B SN7400 — IC54B SN7400 — IC55C SN7400 — IC55D SN7400 — IC55A SN7400 — IC54A SN7400 — C20 100pf — D7 — R97 470Ω

IC47F SN7404

IC57 SN7490 — IC58 SN7490 — IC59 SN7490 — IC60 SN7490 — IC61 SN7490 — IC62B SN74H73 — IC62A SN74H73 — IC63D SN7400 — IC63C SN7400 — IC64B SN7400 — IC63B SN7400 — IC64C SN7400 — IC64D SN7400 — IC64A SN7400 — IC63A SN7400 — C21 100pf — D8 — R98 470Ω

IC47E SN7404

IC65 SN7490 — IC66 SN7490 — IC67 SN7490 — IC68 SN7490 — IC69 SN7490 — IC70 SN7490 — IC71B SN74H73 — IC71A SN74H73 — IC72D SN7400 — IC72B SN7400 — IC72C SN7400 74H00 — LSD — 33Ω — B — SYNTHESIZED FREQUENCY OUTPUT 1 load in FG

IC72A SN7400 — C22 100pf — D9 — R99 470Ω

IC47D SN7404 — IC47C SN7404

R100 2K — IC40C SN7400 — S8 CLEAR (NC / C / NO) — R101 2K — IC40D SN7400 — FROM FUNCTION GEN. SYNC C

C23 560pf — R102 5.1K — IC84 TTuL 9601 — 1μS

IC56 DM 8530 7490 — IC48 DM 8530 7490 — SYNTHESIZED FREQUENCY OUTPUT ÷100 — A — NOT USED

COMPUTER IMAGE CORPORATION	2475 W. 2nd AVE. DENVER, COLORADO 80223.		
SCALE NONE	REVISION	BY	DATE
DATE 3-20-71			
DR'N. ER / CK'D.			
APP'VD.			
TITLE FREQUENCY SYNTHESIZER SCHEMATIC	NO. FS-101A SHEET 3 OF 3		